

The afghanistan Agrometeorological Seasonal Bulletin



Issue No. 6

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Agromet Network



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Summary

The rainfall season (2008 – 2009) started in the Eastern region on 1st dekad of September 2008 and rainfall ended in the Eastern region, Southeastern regions and Capital on 3rd dekad of August 2008. Comparison of rainfall data for the rainfall season (2008 – 2009) from September 2008 up to August 2009 with last season (2007-2008) chart (1) shows, significant increase of rainfall during the rainfall season (2008-2009) compared to last season (2007– 2008) across the country.

However the country received much rainfall during the rainfall season (2008 - 2009) and the country did not experienced dry period, so adequate precipitations reduced stress on water recourses and increased crop products in most parts, but previous sever drought impact still continue and need more precipitations to cover the lake of water. As map (2) shows most amount of rainfall occurred in the Northeastern region and some parts of the Capital and Eastern region during the rainfall season (2008 - 2009), the Northern region, Central Highlands, Some parts in the Western region and some parts of the Southeastern region experienced good rainfall during the rainfall season. Rainy days had significant increase during the rainfall season (2008 -2009) compared to the rainfall season (2007 - 2008).

The snowfall started in the Central Highlands on October 2008 and continued up to April 2009 for the Central Highlands and Capital regions.

Temperature for the agricultural season (2008 – 2009) was lower compared to the last season (2007 – 2008) across the country. During the months of January and February 2009 temperature began to get warmer and then slightly decreased. Based on the temperature recorded data, no significant change has happened in frost days during the Agricultural season (2008 - 2009) compared to last season (2007 - 2008) across the country.

There is no change in NDVI value in the remaining regions of the country during the agricultural season (2008 – 2009) over the last season (2007 - 2008).

Average Recorded Rainfall (mm) by Region - Afghanistan Season 2008 - 2009													
Region	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Yearly Total
Capital	0.04	3.1	8.5	16.8	81.9	71.4	55.7	124.9	34	8.6	0.0	5.3	411.14
Central Highlands	0.2	4.0	6.2	22.1	30.5	33.1	50.9	50	28.8	12.7	0	0	248.4
East	15.8	6	15.5	21.2	37	40	38.0	55.7	32	15.2	8.0	31.2	326.1
North east	0	14.9	15.6	10.3	43.1	60.0	40.4	100.6	72.6	21	0	0	306.4
North west	0	1.3	11	14.7	26.3	67.1	37.0	113.5	60.0	9	0.0	0	342.5
South	0	0	3.7	38.8	61.3	2.8	17.1	70.6	8.6	0	0	0	202.0
South east	5.5	5.5	0	7.3	44.1	37.2	66.5	04.5	14	7.1	29.1	21.4	333.2
West	0	0.2	8.2	20.8	38.4	37.7	61.7	85.5	27.8	1.0	0	0	261.2
Minimum	0	0	0	7.3	26.3	2.8	17.1	50	8.6	0	0	0	112.1
Maximum	15.8	14.9	15.6	38.8	81.9	71.4	66.5	124.9	72.6	21	29.1	31.2	583.7
Average	2.82	4.49	8.59	21.25	45.33	44.90	47.26	87.91	34.84	9.44	4.93	7.24	318.98

Agriculture has traditionally driven the Afghan economy, accounting for approximately 50 percent of GDP (Gross domestic product). The agricultural sector has never produced at full capacity. In the past only 30 percent of the total arable land of 15 million hectares was cultivated.

However, the continuing war reduced production significantly. The resulting cut in production caused massive food shortages.

The UNDP estimated that in 1992 only 3.2 million hectares of land were cultivated of which only 1.5 million hectares were irrigated. In Afghanistan, industry is also based on agriculture, along with raw materials. The major industrial crops are cotton, tobacco, castor beans, and sugar beets. Sheep farming is also extremely valuable. The major sheep product exports are wool and sheep skins.

In 2000, Afghanistan experienced its worst food crisis ever recorded because of a very severe drought. Such low levels of recorded rainfall had not been seen in the country since the 1950s. The water used to irrigate the lands comes from melting snow, and in 2000 the country experienced very little snowfall. The southern parts of the country were badly affected, and farmlands produced 40 percent of their expected yields.

Half of the wells in the country dried up during the drought, and the lake feeding the Arghandab dam dried up for the first time since 1952.

In 2008, drought seriously affected Afghanistan and nearly destroyed the country's winter grain crop. Combined with trade disruptions and transport-corridor conflicts, the poor harvest caused local grain prices too much high. Authorities worried that 2009 would repeat the difficulties of 2008, and dry weather lasting from late 2008 through early 2009 increased concern. Beginning in March 2009, however, rain began to fall.

The preliminary results of a study by the Ministry of Agriculture, Irrigation, and Livestock (MAIL) shows that the 2008/2009 Winter wheat planting, which occurred between September and December 2008, was greater than that of the previous year. USAID also distributed agricultural inputs worth about USD 60 million in 14 provinces. Remote sensing data indicate that, compared to the long-term average, rainfall has been normal or above normal during the 2008/2009 wet season, and snow water volume charts indicate that the water equivalent of the snowpack in monitored basins is far higher than the short-term average. However, temperatures have been above normal since late January, which may reduce irrigation water availability over the course of the 2009/2010 agricultural cycle, particularly for the second crop in August and September. In addition, the high temperatures recorded since late January are likely to cause rapid snow melt, which can trigger significant flooding during the next two months.

Above average rainfall, particularly in the north, resulted in increased soil moisture, which bodes well for spring wheat planting? Spring wheat planting starts in early February and continues until early April. However, rain-fed crop performance will depend on the outcome of April and May precipitation.

Crop Condition (Wheat)

Zone	Province	District	Station	Crop Condition	Adverse Factor
Central	Kabul	Shakardara	Karizmir	Good (better than normal)	Not existed
		Paghman	Paghman	Good (better than normal)	Not existed
		Kabul	Darulaman	Good (better than normal)	Not existed
		Sarubi	Sarubi	Normal	Rust of wheat
	Panjsher	Dara	Dara	Normal	More rainfall caused excessive weeds, rust and cut worm
		Dashtak	Dashtak	Normal	More rainfall caused excessive weeds, rust and cut worm
	Parwan	Syagerd	Syagerd	Good (better than normal)	Not existed
		Charikar	Charikar	Good (better than normal)	Not existed
	Kapisa	Mahmoodraqi	Mahmoodraqi	Poor (below normal)	Due to more rainfall, heavy hail and excessive weeds wheat is physically damaged.
		Kohistan	Kohistan	Poor (below normal)	Due to more rainfall, heavy hail and excessive weeds wheat is physically damaged.
	Wardak	Chak	Chak	Good (better than normal)	Not existed
		Jaghato	Jaghato	Good (better than normal)	Not existed
East Central	Bamyan	Bamyan	Bamyan	Good (better than normal)	Not existed
		Yakawlang	Yakawlang	Good (better than normal)	Not existed
		Panjab	Panjab	Good (better than normal)	Not existed
Eastern	Noristan	Paroon	Paroon	Normal	Late planting
	Nangarhar	Agam	Agam	Normal	Rust, excessive weeds and crop logging
		Batikot	Ghaziabad	Normal	Rust and excessive weeds in wheat area
		Jalalabad	Sheshembagh	Normal	Rust and excessive weeds in wheat area
		Jalalabad	Farm Jadeed	Normal	Rust and excessive weeds in wheat area
	Kunar	Asmar	Asmar	Good (better than normal)	Not existed
		Asadabad	Asadabad	Good (better than normal)	Not existed
	Laghman	Mihtarlam	Mihtarlam	Normal	wheat areas is affected by rust
Northeast	Takhar	Bangi	Bangi	Normal	80% of wheat is better than last year and 20% wheat is affected by cut worm rust, smut and locusts.
		Taluqan	Taluqan	Normal	80% of wheat is better than last year and 20% wheat is affected by cut worm rust, smut and locusts.
	Kunduz	Imam Sahib	Imam Sahib	Normal	Excessive weeds and cut worm
		Qaliazal	Aqtipa	Normal	Excessive weeds
		Chardara	Chardara	Normal	Excessive weeds
		Kunduz	Kunduz	Normal	Excessive weeds and cut worm
	Baghlan	Pulikhomri	Pozaishan	Normal	Rust, smut and excessive weeds
	Badakhshan	Faizabad	Faizabad	Good (better than normal)	Not existed

Crop Condition (Wheat)

Zone	Province	District	Station	Crop Condition	Adverse Factor
South Eastern	Khost	Khost	Khost	Normal	Excessive weeds
		Khost	Shimal	Normal	Excessive weeds
		Ali Sher	Ali Sher	Normal	Excessive weeds
	Paktai	Zormat	Rohani Baba	Good (better than normal)	Not existed
		Gardiz	Tera	Good (better than normal)	Not existed
	Paktika	Urgon	Urgon	Normal	Not existed
		Sharana	Sharana	Normal	Heavy hail damaged fruit trees
		Khairkot	Khairkot	Normal	Not existed
	Ghazni	Muqur	Muqur	Normal	Not existed
		Andar	Bande Sardi	Normal	Not existed
Southern	Nimroz	Zaranj	Zaranj	Poor (below normal)	Water deficiency in Nimroz province. (Due to less amount of rainfall in Kang and Chaghansoor districts, cultivation is not done except some areas there is less cultivation.
	Kandahar	Kandahar	Kandahar	Normal	Not existed
	Zabul	Qalat	Qalat	Normal	Not existed
	Urozgan	Tarinkot	Tarinkot	Normal	Not existed
	Hilmand	Nad Ali	Nad Ali	Good (better than normal)	Not existed
		Greshk	Greshk	Good (better than normal)	Not existed
		Nawa	Nawa	Good (better than normal)	Not existed
		Lashkargah	Bolan	Good (better than normal)	Not existed
North	Balkh	Dihdadi	Dihdadi	Good (better than normal)	Not existed
		Nahrishahi	Nahrishahi	Good (better than normal)	Not existed
	Jawzjan	Sheberghan	Sheberghan	Normal	30% Locusts
		Darzab	Darzab	Normal	Not existed
	Saripul	Saripul	Saripul	Normal	Not existed
		Sozmaqala	Sozmaqala	Normal	Not existed
	Faryab	Maimana	Maimana	Normal	Not existed
	Samangan	Aibak	Aibak	Good (better than normal)	Not existed
		Dara Souf Bala	Dara Souf Bala	Good (better than normal)	Not existed
Western	Badghis	Qalainow	Qalainow	Excellent	Not existed
		Muqur	Muqur	Normal	Not existed
	Ghor	Chaghcharan	Chaghcharan	Normal	Not existed
	Hirat	Shindand	Shindand	Good (better than normal)	Not existed
		Zindajan	Zindajan	Good (better than normal)	Not existed
		Gwazara	Falahat	Good (better than normal)	Not existed
		Hirat	Farm Urdokhan	Good (better than normal)	Not existed
	Farah	Farah	Farah	Good (better than normal)	Not existed

Crop Condition (Maize)

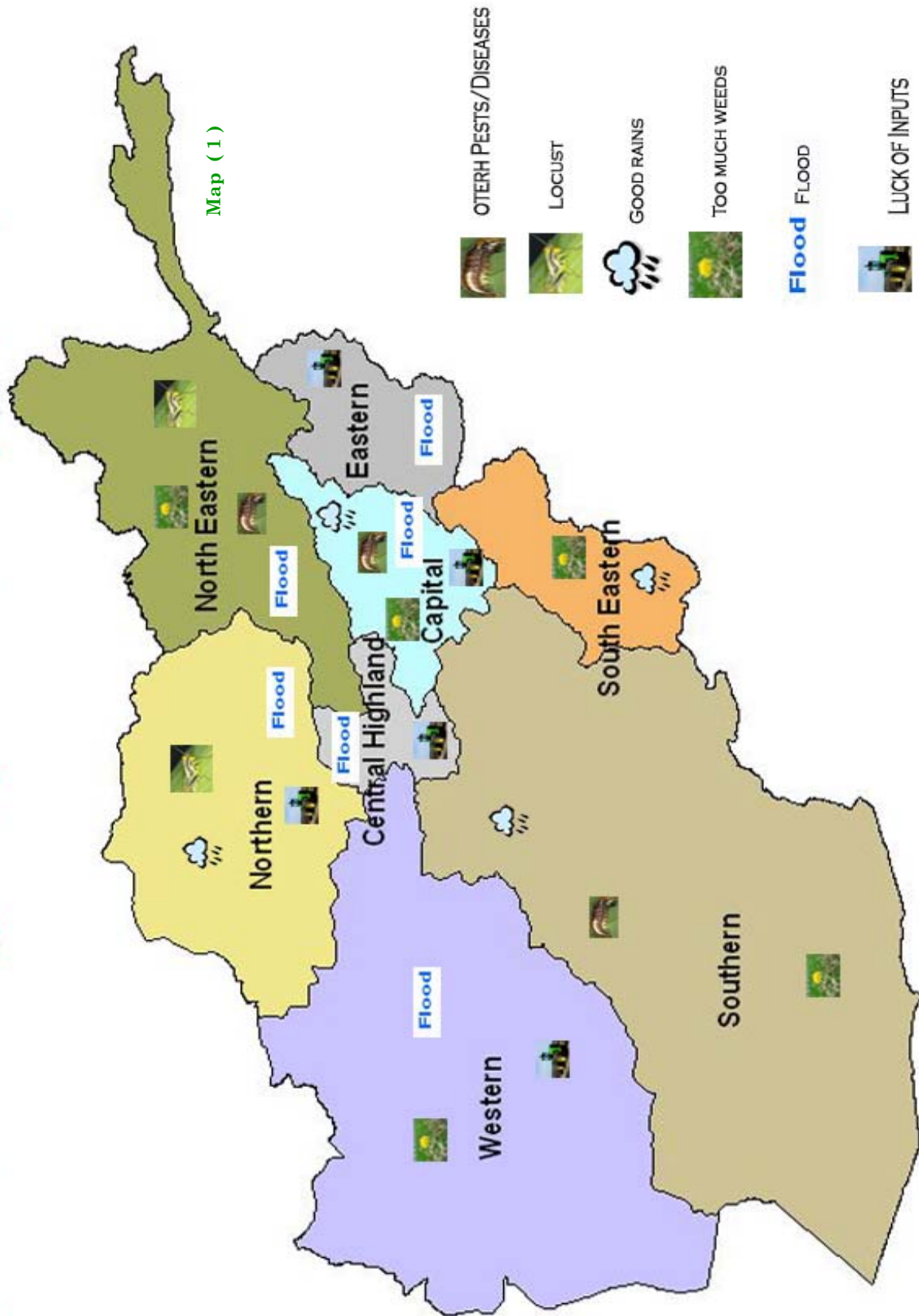
Zone	Province	District	Station	Crop Condition	Adverse Factor
Central	Kabul	Sarubi	Sarubi	Normal	Not existed
	Panjsher	Dashtak	Dashtak	Normal	Not existed
	Karizmir	Shakardara	Shakardara	Normal	Not existed
	Parwan	Charikar	Charikar	Normal	Not existed
	Kapisa	Mahmoodraqi	Mahmoodraqi	Poor (below normal)	Flood damaged 5 Hectare lands
Eastern	Noristan	Paroon	Paroon	Normal	Not existed
	Nangarhar	Agam	Agam	Normal	Storm and Flood
		Batikot	Ghaziabad	Normal	Storm and Flood
		Jalalabad	Sheshembagh	Good (better than normal)	Not existed
		Jalalabad	Farm Jadeed	Good (better than normal)	Not existed
	Konar	Asmar	Asmar	Normal	Not existed
		Asadabad	Asadabad	Normal	Not existed
	Laghman	Mihtarlam	Mihtarlam	Normal	Not existed
Northeast	Takhar	Bangi	Bangi	Normal	Cut worm, Locust
		Taluqan	Taluqan	Normal	Cut worm, Locust
	Kunduz	Imam Sahib	Imam Sahib	Normal	Cut worm
		Qaliazal	Aqtipa	Normal	Cut worm
		Chardara	Chardara	Normal	Cut worm
		Kunduz	Kunduz	Normal	Cut worm
	Baghlan	Pulikhomri	Pozaishan	Normal	Not existed
	Badakhshan	Faizabad	Faizabad	Normal	Not existed
South Eastern	Khost	Khost	Khost	Good (better than normal)	Not existed
		Khost	Shimal	Good (better than normal)	Not existed
		Ali Sher	Ali Sher	Good (better than normal)	Not existed
	Paktai	Zormat	Rohani Baba	Good (better than normal)	Not existed
		Gardiz	Tera	Normal	Not existed
	Paktika	Urgon	Urgon	Normal	Not existed
		Sharana	Sharana	Normal	Not existed
		Khairkot	Khairkot	Normal	Not existed
	Ghzni	Muqur	Muqur	Good (better than normal)	Not existed
South Western	Kandahar	Kandahar	Kandahar	Normal	Not existed
	Zabul	Qalat	Qalat	Normal	Not existed
	Urozgan	Tarinkot	Tarinkot	Normal	Not existed
	Hilmand	Nad Ali	Nad Ali	Normal	Not existed
		Greshk	Greshk	Normal	Not existed
		Nawa	Nawa	Normal	Not existed
		Lashkargah	Bolan	Normal	Not existed
North	Balkh	Dihdadi	Dihdadi	Good (better than normal)	Not existed
		Nahrishahi	Nahrishahi	Normal	Not existed
	Jawzjan	Sheberghan	Sheberghan	Normal	Not existed
		Darzab	Darzab	Normal	Not existed
	Saripul	Saripul	Saripul	Normal	Not existed
		Sozmaqala	Sozmaqala	Normal	Not existed
	Faryab	Maimana	Maimana	Normal	Not existed
	Samangan	Aibak	Aibak	Good (better than normal)	Not existed
		Dara Souf Bala	Dara Souf Bala	Good (better than normal)	Not existed
Western	Badghis	Qalainow	Qalainow	Normal	Not existed
		Muqur	Muqur	Normal	Not existed
	Hirat	Shindand	Shindand	Normal	Not existed
		Hirat	Zindajan	Normal	Not existed
	Farah	Farah	Farah	Normal	Not existed
		Farah	Farah	Normal	Not existed

Crop Condition (Rice)

Zone	Province	District	Station	Crop Condition	Adverse Factor
Central	Kabul	Sarubi	Sarubi	Normal	Not existed
Eastern	Nangarhar	Agam	Agam	Good (better than normal)	Not existed
		Batikot	Ghaziabad	Good (better than normal)	Not existed
		Jalalabad	Sheshembagh	Good (better than normal)	Not existed
		Jalalabad	Farm Jadeed	Good (better than normal)	Not existed
	Konar	Asmar	Asmar	Good (better than normal)	Not existed
		Asadabad	Asadabad	Good (better than normal)	Not existed
	Laghman	Mihtarlam	Mihtarlam	Good (better than normal)	Not existed
Northeast	Takhar	Bangi	Bangi	Normal	Cut worm
		Taluqan	Taluqan	Normal	Cut worm
	Kunduz	Imam Sahib	Imam Sahib	Normal	Not existed
		Qaliazal	Aqtipa	Normal	Not existed
		Chardara	Chardara	Normal	Not existed
		Kunduz	Kunduz	Normal	Not existed
	Baghlan	Pulikhomri	Pozaisan	Good (better than normal)	Not existed
	Badakhshan	Faizabad	Faizabad	Normal	Not existed
South Eastern	Khost	Khost	Khost	Normal	Not existed
		Khost	Shimal	Normal	Not existed
		Ali Sher	Ali Sher	Normal	Not existed
	Paktai	Zormat	Rohani Baba	Normal	Not existed
		Gardiz	Tera	Normal	Not existed
	Paktika	Urgon	Urgon	Normal	Not existed
		Sharana	Sharana	Normal	Not existed
		Khairkot	Khairkot	Normal	Not existed
North	Balkh	Dihdadi	Dihdadi	Good (better than normal)	Not existed
		Nahrishahi	Nahrishahi	Good (better than normal)	Not existed
	Jawzjan	Sheberghan	Sheberghan	Normal	Not existed
		Darzab	Darzab	Normal	Not existed
	Saripul	Saripul	Saripul	Normal	Not existed
		Sozmaqala	Sozmaqala	Normal	Not existed
	Faryab	Maimana	Maimana	Normal	Not existed
	Samangan	Aibak	Aibak	Normal	Not existed
		Dara Souf Bala	Dara Souf Bala	Normal	Not existed
Western	Badghis	Qalainow	Qalainow	Normal	Not existed
	Hirat	Shindand	Shindand	Good (better than normal)	Not existed
		Hirat	Zindajan	Normal	Not existed

Synthesis Situation Map for the Agricultural Season of (2008/ 2009)

Map (1)



Rainfall season (2008– 2009)

Based on this approach the rainfall season (2008 – 2009) started normally early in the Eastern region at 1st dekad of September 2008 and ended in the Eastern region, Southeastern regions and the Capital region in 3rd dekad of August 2009.

Comparison of rainfall data for the rainfall season (2008 – 2009) from September 2008 until August 2009 with the last season (2007-2008) as chart (1) shows, significant increase of rainfall during the rainfall season (2008-2009) compared to last season (2007– 2008) has been occurred across the country.

Distribution of rainfall was variable in different regions of the country during the rainfall season (2008-2009) , as map (1) shows the Northeastern region, Eastern and some parts of the Capital regions experienced much rainfall during the rainfall season (2008 -2009), the Northern region, Central Highlands, Some parts in the Western region and some parts of the Southeastern region experienced good rainfall during the rainfall season. Lowest amount of rainfall occurred in the Southern and Southwestern regions.

Dry spill:

During the rainfall season (2008 - 2009) particularly in the winter months numerous winter storms and low

pressure systems moved toward Afghanistan and pushed adequate moisture inside the country as a result of which, a deep snow pack developed in much of the country particularly in the Central Highlands and Northeastern region, precipitation continued during the Spring months of this season.

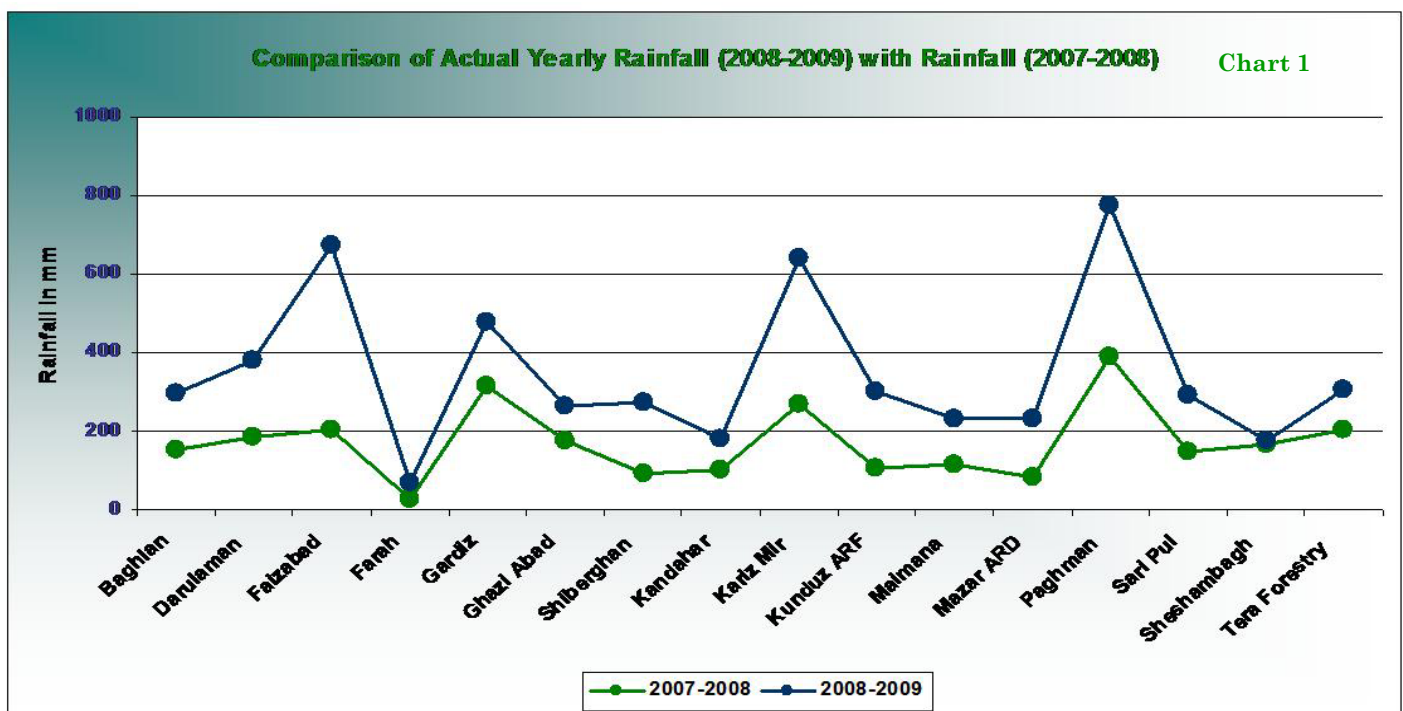
Snow coverage is permanent resource of water in Afghanistan.

When temperature began to get warmer during the spring months, as is typical, the snow began to be melted which caused a numerous rain- on - snow events.

As a result many parts of the country experienced flash flooding triggered by snow melt water.

However the country received much rainfall during the rainfall season (2008 - 2009) and the country did not experienced dry period, so adequate precipitations reduced stress on water recourses and increased crop products in most parts, but previous sever drought impact still continue and need more precipitations to cover the lake of water.

Hope the upcoming rainfall season bring adequate precipitations for better crop productions and



Rainfall pattern

The rainfall season (2008 – 2009) started in the Eastern region at 1st dekad of September 2008 and rainfall ended in the Eastern region, Southeastern regions and Capital in 3rd dekad of August 2008.

The starting and ending rainfall season in different regions is as follows:

In the Capital region rainfall started at 2nd dekad of November 2008 and rainfall ended at 3rd dekad of August 2009, for the Central Highlands rainfall started in the 1st dekad of October 2008 and ended at the 1st dekad of May 2009, for the Eastern region rainfall started at the 1st dekad of September 2008 and ended at the 3rd dekad

of August 2009 for the Northeastern region rainfall started at the 2nd dekad of November 2008 and ended at the 3rd dekad of June 2009, for the Northern region rainfall started at the 1st dekad of November 2008 and ended at the 2nd dekad of June 2009, for Southern region, rainfall started at the 2nd dekad of December 2008 and ended at the 3rd dekad of Aug 2009, for Southeastern region rainfall started at the 2nd dekad of January 2009 and ended at the 3rd dekad of August 2009, and for the Western region rainfall started in the 1st dekad of November 2008 and ended at the 3rd dekad of June 2009.

Length of Rainfall season by dekad (2008-2009)

The length of rainfall season in different parts of the country is as follows: 17 dekads for the Capital, 18 dekads for Central Highlands, 24 dekads for the Eastern region, 25 dekads for the Northeastern region, 18 dekads for the Northern

15 dekads for Southern region, 19 dekads for the Southeastern region; and 14 dekads for the Western region.

Afghanistan season 2008 - 2009				
No	Name of Station	Starting Dekad	Ending Dekad	Number of dekads with Precipitation
Capital Region				
1	Badam bagh	2nd dekad of Dec	1st dekad of May	10
2	Chack	2nd dekad of Dec	2nd dekad of April	11
3	Charikar	2nd dekad of Dec	1st dekad of May	13
4	Darulaman	1st dekad of Jan	3rd dekad of Aug	17
5	Panjshir	2nd dekad of Nov	3rd dekad of Aug	16
6	Gul Khana	1st dekad of Jan	3rd dekad of Aug	16
8	Jaghato	2nd dekad of Dec	3rd dekad of Aug	14
9	kabul	1st dekad of Jan	3rd dekad of Aug	14
10	Kapisa Agri	1st dekad of Jan	2nd dekad of May	15
11	Kariz Mir	1st dekad of Jan	2nd dekad of June	17
13	Paghman	1st dekad of Jan	3rd dekad of Aug	17
14	Qargha	1st dekad of Jan	3rd dekad of Aug	17
15	Sarobi	2nd dekad of Dec	1st dekad of May	15
16	Seya Gerd	2nd dekad of Jan	1st dekad of May	11

Length of Rainfall season by dekad (2008-2009)

Afghanistan Season (2008 - 2009)

No	Name of Station	Starting Dekad	Ending Dekad	Number of dekads with Precipitaion
18	Bamyan ARD	2nd dekad of Feb	1st dekad of May	12
19	Panjab	3rd of dekad of Oct	1st dekad of May	18
20	Yakawlang	1st dekad of Jan	1st dekad of May	15

East

21	Agam	2nd dekad of Sep	3rd dekad of Aug	17
22	Asmar	1st dekad of Sep	3rd dekad of Aug	24
23	Farm Jadeed	2nd dekad of Sep	3rd dekad of Aug	12
24	Ghazi Abad	1st dekad of Sep	3rd dekad of Aug	12
25	Jalalabad	2nd dekad of Sep	3rd dekad of Aug	13
27	Mehtarlam	2nd dekad of Nov	3rd dekad of Aug	17
28	Sheshambagh	2nd dekad of Sep	3rd dekad of Aug	13

Northeast

29	Chardara	3rd dekad of Oct	1st dekad of June	17
30	Aqtepa	3rd dekad of Oct	1st dekad of May	15
31	Baghlan	2nd dekad of Nov	1st dekad of May	16
32	Baharak	2nd dekad of Oct	3rd dekad of June	25
33	Faizabad	3rd dekad of Oct	3rd dekad of June	22
34	Imam Sahib	2nd dekad of Dec	1st dekad of May	13
35	Kunduz ARF	3rd dekad of Oct	1st dekad of June	17
36	Taluqan	3rd dekad of Oct	2nd dekad of May	18
37	Aibak	2nd deksd of Dec	1st dekad of MAY	16

Length of Rainfall season by dekad (2008-2009)

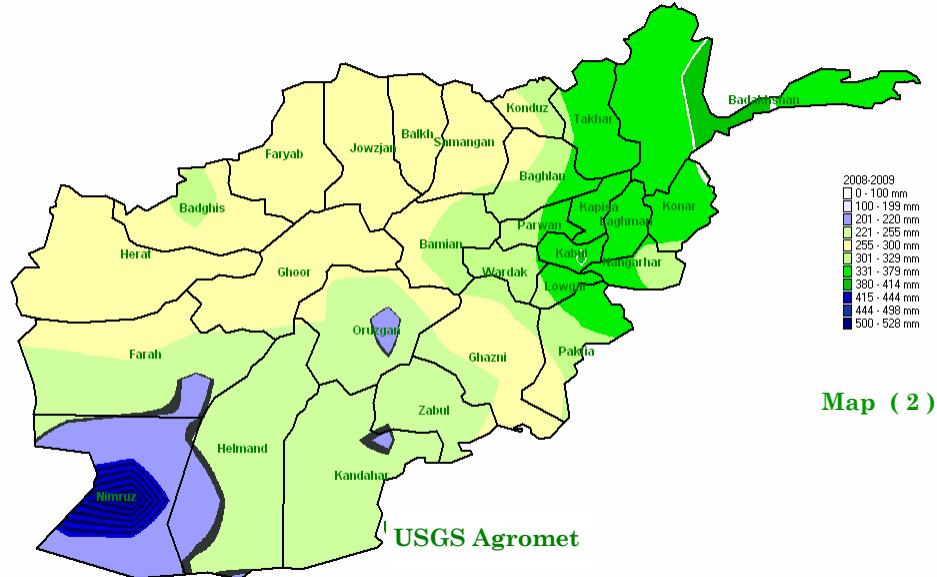
Afghanistan season (2008 - 2009)

No	Name of Station	Starting Dekad	Ending Dekad	Number of dekads with Precipitaion
North				
38	Darzab	2nd dekad of Dec	1st dekad of May	13
39	Jawzjan ARD	2nd dekad of Dec	1st dekad of May	15
40	Kolor or khuram	2nd dekad of Jan	2nd dekad of June	17
41	Maimana	1st dekad of Nov	1st dekad of May	15
42	Mazar ARD	2nd dekad of Jan	1st dekad of May	9
44	Sarbagh	2nd dekad of Nov	2nd dekad of June	18
45	Sari Pul	1st dekad of Jan	1st dekad of May	13
47	Takhta Pul	2nd dekad of Dec	1st dekad of May	13
South				
48	Greshk	2nd dekad of Dec	2nd dekad of April	7
49	Kandahar	2nd dekad of Dec	2nd dekad of April	7
50	Lashkargah	2nd dekad of Dec	2nd dekad of April	7
51	Nad Ali	2nd dekad of Dec	2nd dekad of April	7
52	Nawa Gorgin	2nd dekad of Dec	2nd dekad of April	7
53	Uruzgan ARD	2nd dekad of Dec	2nd dekad of April	9
54	Zabul	2nd dekad of Dec	2nd dekad of April	11
55	Zaranj	2nd dekad of Jan	1st dekad of April	5
56	Gardiz	2nd dekad of Dec	1st dekad of May	15
57	Ghazni Met	1st dekad of Jan	1st dekad of May	12
58	Sarday	1st dekad of Jan	2nd dekad of April	10
Southeast				
59	Khost	2nd dekad of Jan	3rd dekad of Aug	19
60	Moqur	2nd dekad of Jan	3rd dekad of Aug	8
61	Rohani Baba	2nd dekad of Jan	3rd dekad of Aug	7
62	Sharana	2nd dekad of Jan	3rd dekad of Aug	8
63	Tera Forestry	2nd dekad of Jan	3rd dekad of Aug	13
West				
64	Cheghcharan	2nd dekad of Dec	3rd dekad of June	13
65	Farah	2nd dekad of Dec	1st dekad of May	8
66	Hirat	1st dekad of Jan	1st dekad of May	12
67	Moqur Badghis	1st dekad of Nov	1st dekad of May	12
68	Qala-e-naw	1st dekad of Nov	1st dekad of May	14
69	Shindand	1st dekad of Dec	1st dekad of May	12
70	Zenda jan	1st dekad of Jan	1st dekad of May	12

Recorded Distribution of Rainfall (2008-2009)

Map (2) shows rainfall distribution for the rainfall season (2008 - 2009) across the country, the distribution of rainfall was variable in different regions. As map (2) shows most of rainfalls has been occurred in the Northeastern region and some parts of the Capital and Eastern regions during the rainfall season (2008 - 2009), the Northern region, Central Highlands. Some parts in the Western region and some parts of the Southeastern region experienced good rainfall during the rainfall season. The Southern and Southwestern regions experienced less amount of rainfall during the rainfall season (2008 - 2009).

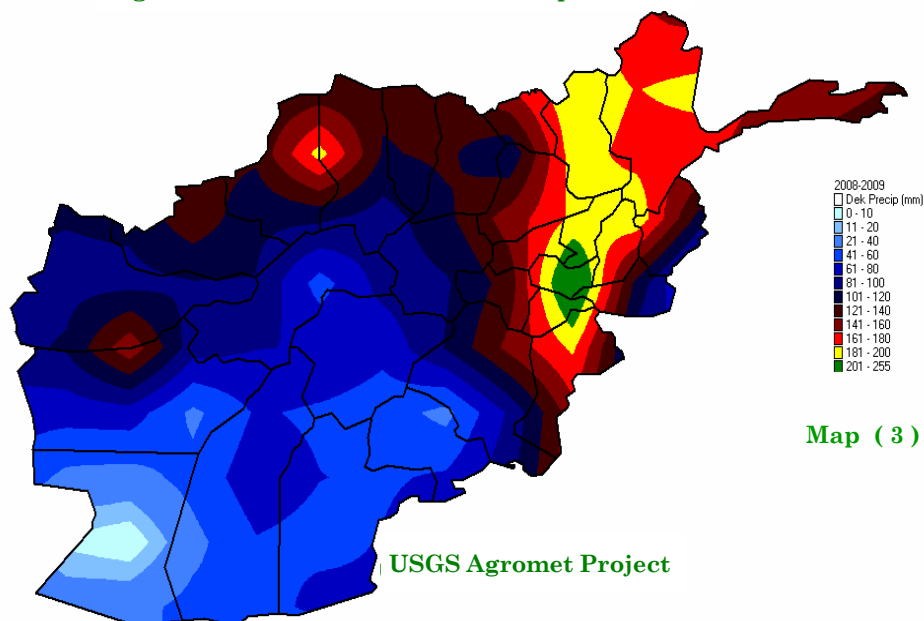
Yearly Observed Total Rainfall Agriculture Season (2008 - 2009)



Map (2)

Map (3) shows the Maximum rainfall during the rainfall season (2008 – 2009) .As map (3) shows April 2009 was the most wet month for the rainfall season (2008 - 2009). The country experienced much amount of rainfall during the month of April 2009 , most of these rainfalls has been occurred in the Capital region, and some parts of the Southeastern region, Northeastern.

High Rainfall Month of the Season April 2009



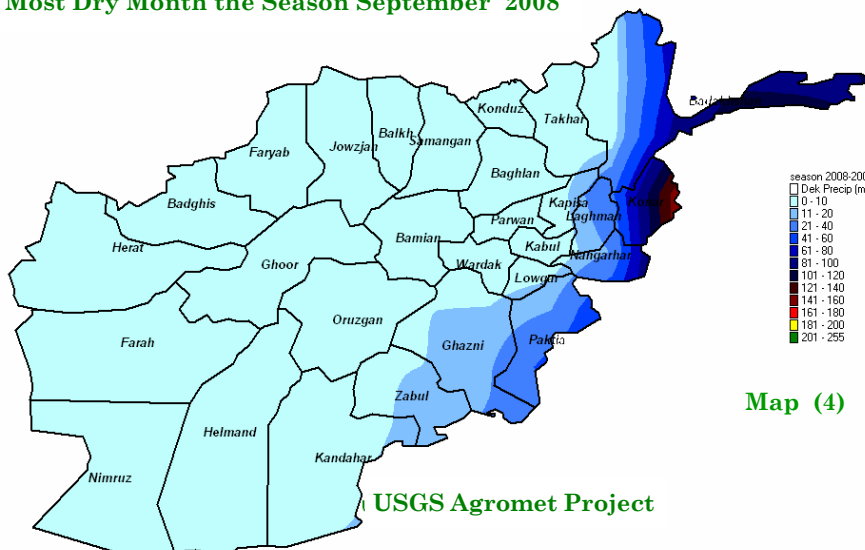
Map (3)

Recorded Distribution of Rainfall (2008-2009)

The month of September 2008 was the driest month during the rainfall season (2008 - 2009) in most parts of country, except the Eastern, Northeastern regions and some parts of the

Southeastern region received rainfall due to Indian monsoon, this situation is typical in September and November months for the country.

Most Dry Month the Season September 2008

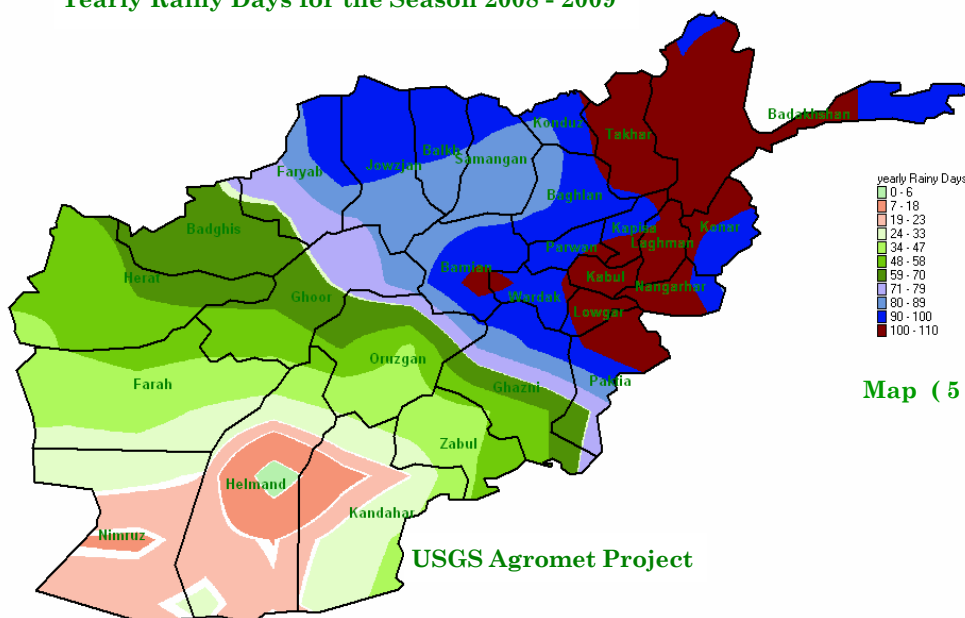


Yearly Rainy Days

Rainy days had significant increase during the rainfall season (2008 -2009) compared to the rainfall season (2007 - 2008). Maximum rainy days has been recorded 69 rainy days in Bahark (Northeastern region) during the rainfall season (2008-2009), and lowest rainy days recorded 14 days in Nad Ali, Greshk and Nawa Gorgin (Southern region).

Map (5) shows yearly rainy days for the rainfall season (2008 - 2009) across the country, where the Northeastern region, Eastern and some parts of the Southeastern regions experienced much rainy days during the rainfall season (2008 - 2009), lowest rainy days recorded in the Southern region.

Yearly Rainy Days for the Season 2008 - 2009



Analysis of Recorded Rainfall by Region for the rainfall season (2008-2009)

Capital Region: Badam Bagh, Chack, Charikar, Darulaman, Panjshir, Gul Khana, Jabulsaraj, Jaghatoo, Kabul, Kapisa, Kariz Mir, Logar, Paghman, Qargha and Sarobi stations are located in this region. During the (2008 – 2009) season the average rainfall of this region is **396.4** mm. This region received much rainfall compared to other regions during the rainfall season (2008– 2009), which most amount of rainfall occurred in the month of December, January February, March and April. In this region the Maximum value (more than 15 mm) of rainfall by dekad in mm is as follow:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Badambagh					28 mm 3rd dekad	77 mm 2nd dekad	15 mm 1st dekad	60 mm 1st dekad	15.5 mm 1st dekad			
Chack				20 mm 2nd dekad	28.3 mm 2nd dekad	37.2 mm 2nd dekad	35 mm 2nd dekad	27 mm 2nd dekad				
Chrikar					16 mm 2nd dekad	28 mm 2nd dekad		52 mm 2nd dekad				
Darulaman					45.8 mm 3rd dekad	26.4 mm 3rd dekad	37.8 mm 3rd dekad	56.8 mm 1st dekad	21.2 mm 1st dekad			
Panjshir			21 mm 2nd dekad		51 mm 2nd dekad	36 mm 1st dekad	29 mm 3rd dekad	88 mm 3rd dekad				18 3rd dekad
Gul Khana					30.4 mm 3rd dekad	50 mm 2nd dekad	35.2 mm 3rd dekad	73.2 mm 1st dekad	21.8 mm 1st dekad			
Jabulsaraj				48.3 mm 2nd dekad								
Jaghatoo					45 mm 2nd dekad	30 mm 2nd dekad	92 mm 3rd dekad	61 mm 2nd dekad	99 mm 1st dekad			26 mm 3rd dekad
Kabul					24 mm 3rd dekad	40 mm 2nd dekad	24.3 mm 3rd dekad	93.8 mm 1st dekad	22 mm 1st dekad			
Kapisa					66 mm 2nd dekad	60 mm 1st dekad	43.5 mm 3rd dekad	62 mm 1st dekad	20.5 mm 1st dekad			
Kariz Mir					57 mm 3rd dekad	81 mm 2nd dekad	60 mm 3rd dekad	94 mm 1st dekad	61 mm 1st dekad			
Logar					45 mm 2nd dekad	51 mm 2nd dekad	42.4 mm 3rd dekad	67 mm 1st dekad	29.4 mm 1st dekad			
Paghman					61 mm 2nd dekad	73 mm 2nd dekad	57 mm 1st dekad	75 mm 1st dekad	71 mm 1st dekad			
Qargha					26 mm 3rd dekad	41.5 mm 2nd dekad	32.5 mm 3rd dekad	66.5 mm 1st dekad	30 mm 1st dekad			
Sarobi					28 mm 1st dekad	34 mm 2nd dekad	40 mm 3rd dekad	46 mm 1st dekad	21.5 mm 1st dekad			

Analysis of Recorded Rainfall by Region for the rainfall season (2008-2009)

Central Highlands: Bamyar, Bamyar ARD, Panhab and Yakawlang stations are located in this region . During the (2008 – 2009) season the average rainfall of this region is : **271 mm** The Central Highlands region experienced much rainfall during the rainfall season (2008 - 2009) over the rainfall season (2007 - 2008). The maximum rainfall recorded by dekad in mm is as follows:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Bamyar ARD						17 mm 2nd dekad	17.5 mm 1st dekad	16.5 mm 2nd dekad	16 mm 1st dekad			
Panjab		20 mm 3rd dekad					17 mm 1st dekad	99.2 mm 1st dekad	44 mm 1st dekad			
Yakawlang					34 mm 2nd dekad	16 mm 1st dekad	44 mm 1st dekad	23 mm 1st dekad	18 mm 1st dekad			

East Region: Agam, Asmar, Farm Jadeed, Ghazi Abad, Jalalabad, Laghman and Mehtarlam stations are located in this region During the (2008– 2009) season the average rainfall of this region is : **332 mm** This region experienced significant rainfall during the rainfall season (2008 – 2009) in this region rainfall continued up to August 2009, the maximum rainfall which has been recorded by dekad in mm is as follow:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Agam	20 mm 2nd dekad		21 mm 1st dekad		19.5 mm 3rd dekad	41 mm 2nd dekad	30 mm 3rd dekad	44.5 mm 1st dekad				29 mm 3rd dekad
FormJaded						17.7 mm 2nd dekad		31 mm 1st dekad	35 mm 1st dekad			20.5 mm 3rd dekad
Ghazi Abad					19 mm 3rd dekad	39 mm 2nd dekad	43 mm 3rd dekad	39 mm 3rd dekad	25 mm 1st dekad			17 mm 3rd dekad
Jalabad						23 mm 2nd dekad	27 mm 3rd dekad	34 mm 1st dekad	34 mm 1st dekad			
Mehtarlam			23 mm 2nd dekad	38 mm 2nd dekad	19 mm 3rd dekad	55 mm 2nd dekad	25 mm 3rd dekad	38 mm 1st dekad	49 mm 1st dekad			35 mm 3rd dekad
Asmar	40 mm 1st dekad		60 mm 1st dekad	22 mm 2nd dekad	46 mm 3rd dekad	42 mm 2nd dekad	49 mm 3rd dekad	32 mm 1st dekad	57 mm 1st dekad	18 mm 1st dekad	24 mm 1st dekad	52 mm 3rd dekad

Analysis of Recorded Rainfall by Region for the rainfall season 2008-2009

Northeast Region: Chardara, Aqtepa, Baghlan, Baharak, Faizabad, Imam Sahib, Kunduz ARF, Taluqan and Aibak stations are located in this region. During the (2008 – 2009) season the average rainfall of this region is :**356.7** mm. The Northeastern region rainfall had not significant change compared to last season (2007 - 2008). In this region rainfall started in October 2008 and continued up to June 2009. The maximum value of rainfall recorded in mm in different stations by dekad is listed below:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Chardara				45.9 mm 2nd dekad	31 mm 1st dekad	18.5 mm 1st dekad	23 mm 1st dekad	37.4 mm 3rd dekad	35.3 mm 1st dekad			
Aqtepa				16 mm 2nd dekad	33 mm 1st dekad	75 mm 2nd dekad	33 mm 1st dekad	65 mm 3rd dekad	71 mm 1st dekad			
Baghlan			16.8 mm 2nd dekad		21 mm 3rd dekad	31.6 mm 2nd dekad	17 mm 1st dekad	36 mm 1st dekad	33.8 mm 2nd dekad			
Baharak					18 mm 2nd dekad	25 mm 1st dekad	44 mm 3rd dekad	57 mm 1st dekad	40 mm 2nd dekad			
Faizabad					34 mm 3rd dekad	45.5 mm 2nd dekad	42.5 mm 1st dekad	18.5 mm 3rd dekad	93 mm 1st dekad	40 mm 1st dekad		
Imamsahib					27 mm 1st dekad	26.2 mm 2nd dekad	15.1 mm 1st dekad	31.1 mm 3rd dekad	19.3 mm 1st dekad			
Kunduz		15.7 mm 3rd dekad		31 mm 2nd dekad.....	30 mm 1st dekad	33.5 mm 2nd dekad	22 mm 1st dekad	58.8 mm 3rd dekad	26.5 mm 1st dekad			
Taluqan		19 mm 3rd dekad	20 mm 2nd dekad		15 mm 1st dekad	26 mm 2nd dekad	25 mm 1st dekad	69 mm 2nd dekad	65 mm 1st dekad			
Aibak						24 mm 3rd dekad		28 mm 3rd dekad	50 mm 1st dekad			

Analysis of Recorded Rainfall by Region for the rainfall season 2008-2009

North Region Darzab, Jawzjan, Kolor or khuram, Maimana, Mazar, Mazarisharif, Sarbagh, Sari Pul, Sheberghan and Takhta Pul stations are located in this region. During the (2008 – 2009) season the average rainfall of this region is **307.4 mm**. In This region rainfall had significant increase during the rainfall season (2008 - 2009) over the last season of (2007 - 2008). The maximum rainfall has been recorded in mm and is shown below:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Darzab				20 mm 2nd dekad		33 mm 1st dekad	38.5 mm 1st dekad	61.6 mm 2nd dekad	55.5 mm 1st dekad			
Jawzjan ARD				19 mm 2nd dekad	16 mm 1st dekad	26 mm 2nd dekad	31.9 mm 1st dekad	46 mm 2nd dekad	23.5 mm 1st dekad			
Koloror Khoram						15 mm 3rd dekad	31 mm 1st dekad	47 mm 1st dekad	66 mm 1st dekad	54 mm 1st dekad		
Maimana						41 mm 1st dekad	16 mm 1st dekad	28.7 mm 2nd dekad	28 mm 1st dekad			
Mazar ARD						37.5 mm 2nd dekad	20.1 mm 1st dekad	38 mm 3rd dekad				
Sarbagh				16 mm 2nd dekad		38 mm 2nd dekad	24 mm 3rd dekad	70 mm 3rd dekad	27 mm 2nd dekad			
Sari Pul					15.5 mm 2nd dekad	26 mm 2nd dekad	27 mm 1st dekad	48.5 mm 3rd dekad	30.4 mm 1st dekad			
Takhtapul						38 mm 2nd dekad	21 mm 1st dekad	47 mm 3rd dekad	20 mm 1st dekad			

Analysis of Recorded Rainfall by Region for the rainfall season (2008-2009)

South region: Greshk, Kandahar, Lashkargah, Nad Ali. Nawa Gorgin, Uruzgan, Zabul, Zaranj, Gardiz, Ghazni Met and Sarday stations are located in this region. During the season (2008 - 2009) the average rainfall of this region is **214.2 mm**. This region experienced much rainfall during the rainfall season (2008 – 2009) compared to last season (2007 - 2008) most amount of rainfall recorded in January , February and March 2009. The maximum value of rainfall in mm by dekad in the region is as follow:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Greshk					46 mm 2nd dekad		17 mm 3rd dekad	51 mm 1st dekad				
Kandahar					52 mm 2nd dekad		18.5 mm 3rd dekad		44.5 mm 2nd dekad			
Lashkargah					36 mm 2nd dekad		66 mm 1st dekad					
Nad Ali					38 mm 2nd dekad		65 mm 1st dekad					
Nawa Gorgin					50 mm 2nd dekad		77 mm 2nd dekad					
Urazgan ARD						33 mm 3rd dekad	47.5 mm 1st dekad					
Zabul					24 mm 3rd dekad		28 mm 3rd dekad	15 mm 1st dekad				
Gardiz					29 mm 2nd dekad	47 mm 2nd dekad	64.5 mm 3rd dekad	89 mm 1st dekad				
Ghazni					49 mm 2nd dekad	30 mm 2nd dekad	54.4 mm 3rd dekad	45 mm 2nd dekad				
Sardy						15 mm 2nd dekad	16 mm 1st dekad	22 mm 1st dekad				

Analysis of Recorded Rainfall by Region for the rainfall season (2008-2009)

Southeast region: Khost, Moqur, Rohani Baba, Tera Forestry and Sharana stations are located in this region ,the average rainfall of this region is **331.1** mm. The Southeastern region experienced significant rainfall during the rainfall season (2008 – 2009) especially during the monsoon season. The maximum rainfall recorded in this region in mm by dekad is as follow:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Khost					19 mm 2nd dekad	36 mm 2nd dekad	44.5 mm 3rd dekad	43 mm 2nd dekad	16 mm 1st dekad		77 mm 2nd dekad	47 mm 2nd dekad
Muqur					24 mm 2nd dekad		42 mm 3rd dekad	15 mm 2nd dekad				
Rohani Baba						33 mm 2nd dekad	55 mm 3rd dekad	93 mm 1st dekad	46 mm 1st dekad			
Sharana					37 mm 2nd dekad	19.5 mm 2nd dekad	86 mm 3rd dekad	63 mm 1st dekad				
Tera Forestry				17 mm 2nd dekad		15.5 mm 2nd dekad	48 mm 3rd dekad	59 mm 1st dekad	29 mm 1st dekad			

Western Region: Cheghcharan, Farah, Hirat, Moqur Badghis, Qala-e-naw, Shindand and Zenda jan stations are located in this region, yearly rainfall of this regions was **258.8** mm.. This region expreinced much amount of rainfall during the rainfall season (2008 - 2009) over the last season. The maximum rainfall recorded in this region in mm by dekad is as follow:

Stations	2008				2009							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Cheghcheran						16 mm 2nd dekad	34.8 mm 3rd dekad	19.4 mm 1st dekad	54.2 mm 1st dekad	15 mm 3rd dekad		
Farah												
Herat					21 mm 2nd dekad	24 mm 2nd dekad	61 mm 2nd dekad	48 mm 2nd dekad	41 mm 1st dekad			
Muqur Badghis			25 mm 1st dekad			48 mm 2nd dekad	99 mm 1st dekad	77 mm 1st dekad	33 mm 1st dekad			
Qala – e – Naw			18 mm 2nd dekad	44 mm 2nd dekad		39 mm 2nd dekad	45.2 mm 1st dekad	63 mm 1st dekad	33.3 1st dekad			
Shindand				38 mm 1st dekad	28 mm 2nd dekad	34 mm 2nd dekad	35 mm 1st dekad	95.5 mm 1st dekad				

Total Snow Days (2008-2009)

Snow days had an increase during the rainfall season (2008 - 2009) compared to the rainfall season (2007- 2008) across the country. The country experienced much snow days in the winter months which resulted significant snow fall accumulation in the highest elevations, and snow pack increased in the Snow coverage areas. Most snow days have been recorded in Sheber 29 snow days, Dara Pan-jsher 28 snow days and Panjab 27 snow days, and lowest snow days recorded in Shindand 1 snow day and Zenda-jan 2 snow days during the rainfall season (2008 - 2009).

Snow Days of the Season 2008- 2009														Table (2)
Name	Region	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total Snow Days
Badam bagh	Capital	0	0	0	0	5	3	0	0	0	0	0	0	8
Chack		0	0	0	0	5	5	0	0	0	0	0	0	10
Charikar		0	0	0	0	4	4	0	0	0	0	0	0	8
Dara Panjsheer		0	0	4	3	8	7	6	0	0	0	0	0	28
Darulaman		0	0	0	0	6	2	0	0	0	0	0	0	8
Dashtak		0	0	0	0	6	3	0	0	0	0	0	0	9
Gul Khana		0	0	0	0	4	3	0	0	0	0	0	0	7
Jaghatoo		0	0	0	2	7	7	3	0	0	0	0	0	19
Kapisa Agri		0	0	0	0	5	5	0	0	0	0	0	0	10
Kariz Mir		0	0	0	1	8	8	0	0	0	0	0	0	17
Paghman		0	0	0	1	8	4	0	0	0	0	0	0	13
Qargha		0	0	0	1	6	3	0	0	0	0	0	0	10
Bamyan ARD	Central Highlands	0	0	1	4	5	6	7	5	0	0	0	0	19
Panjab		0	0	2	5	6	7	5	0	0	0	0	0	27
Shebar		0	0	3	3	7	10	4	0	2	0	0	0	24
Yakawlang		0	0	0	3	5	7	2	0	0	0	0	0	17
Chardara	Norht east	0	0	1	4	3	2	0	0	0	0	0	0	10
Aaqtepa		0	0	0	2	1	0	0	0	0	0	0	0	3
Baharak		0	0	0	0	6	5	0	0	0	0	0	0	11
Faizabad		0	0	1	1	1	2	0	0	0	0	0	0	5
Kunduz ARD		0	0	1	5	3	1	0	0	0	0	0	0	10
Urgo		0	0	0	5	7	5	0	0	0	0	0	0	17
Aibak	North west	0	0	1	2	2	2	0	0	0	0	0	0	7
Dara-e-Soof		0	0	0	3	4	1	0	0	0	0	0	0	8
Darzab		0	0	1	4	3	1	0	0	0	0	0	0	9
Jawzjan ARD		0	0	0	4	2	0	0	0	0	0	0	0	6
Maimana		0	0	0	1	3	0	0	0	0	0	0	0	4
Sari Pul		0	0	0	1	3	0	0	0	0	0	0	0	4
Takhta Pul		0	0	0	1	0	0	0	0	0	0	0	0	1
Zabul	South	0	0	0	0	0	0	0	0	0	0	0	0	0
Moqur	South east	0	0	0	0	2	3	4	0	0	0	0	0	9
Rohani Baba		0	0	0	0	4	1	0	0	0	0	0	0	5
Sharana		0	0	0	1	4	1	0	0	0	0	0	0	6
Tera Forestry		0	0	0	2	6	2	0	0	0	0	0	0	10
Cheghcharan	West	0	0	0	5	1	5	3	0	0	0	0	0	14
Murghab		0	0	0	0	0	0	0	0	0	0	0	0	0
Qala-e-naw		0	0	0	2	3	0	0	0	0	0	0	0	5

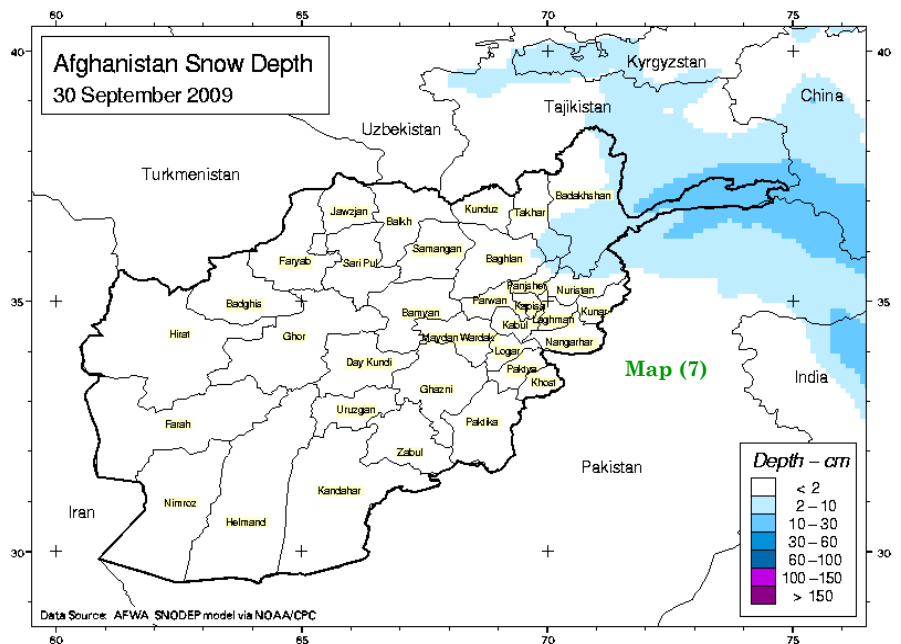
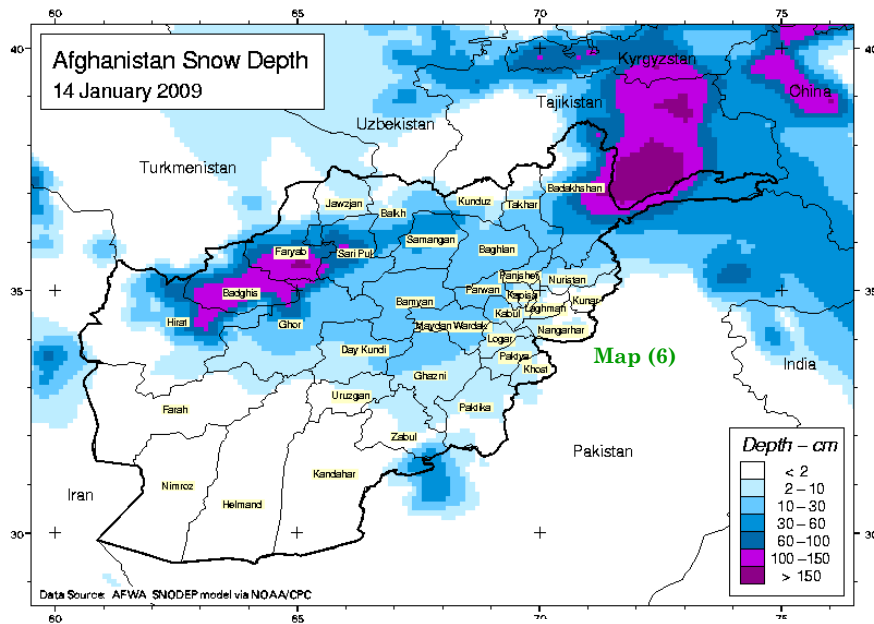
Afghanistan Snow Depth (2008-2009)

The snowfall started in the Central Highlands and Capital regions on October 2008 which continued until April 2009.

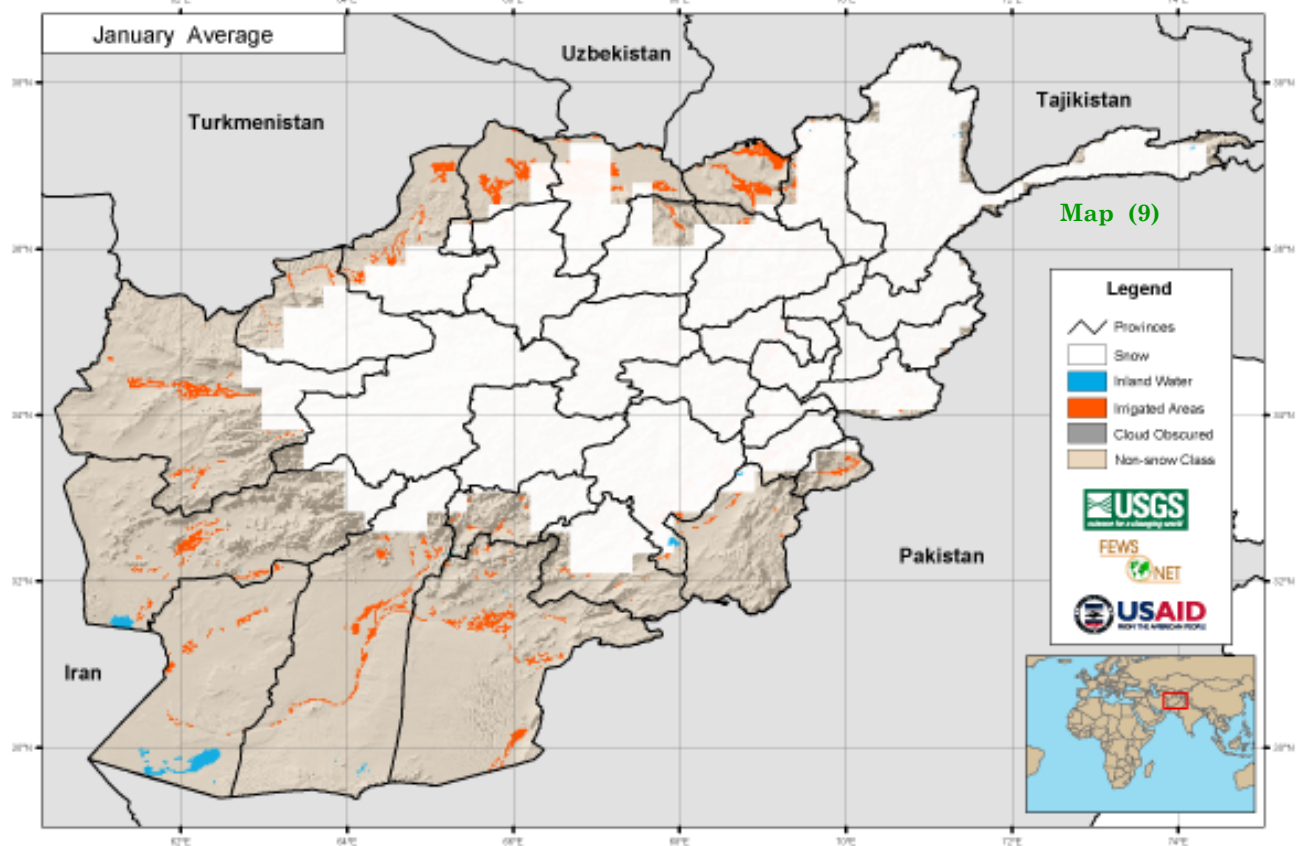
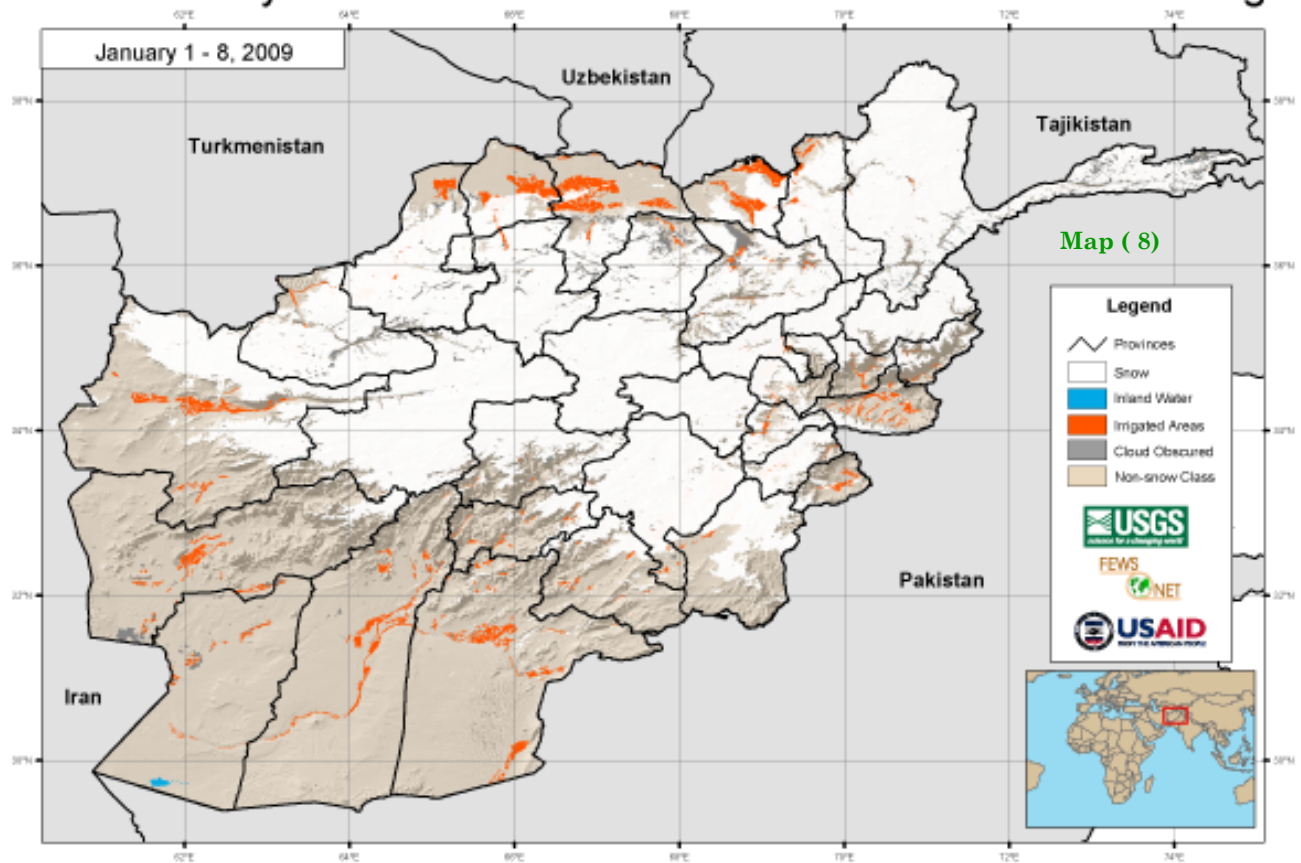
During the winter months of the past season deep snow pack developed in much parts of the country particularly in the Central Highlands and Northeastern region, as temperature began to get warmer during the Spring months, snow began to be melted. However, precipitation continued during the Spring months, which caused a numerous rain- on - snow events that caused rapid snow melt.

In January 2009 an unusually deep snow pack built up, with an increase in snow extent and depth particularly in the Central Highlands and Northeastern mountains as show in map(6) .

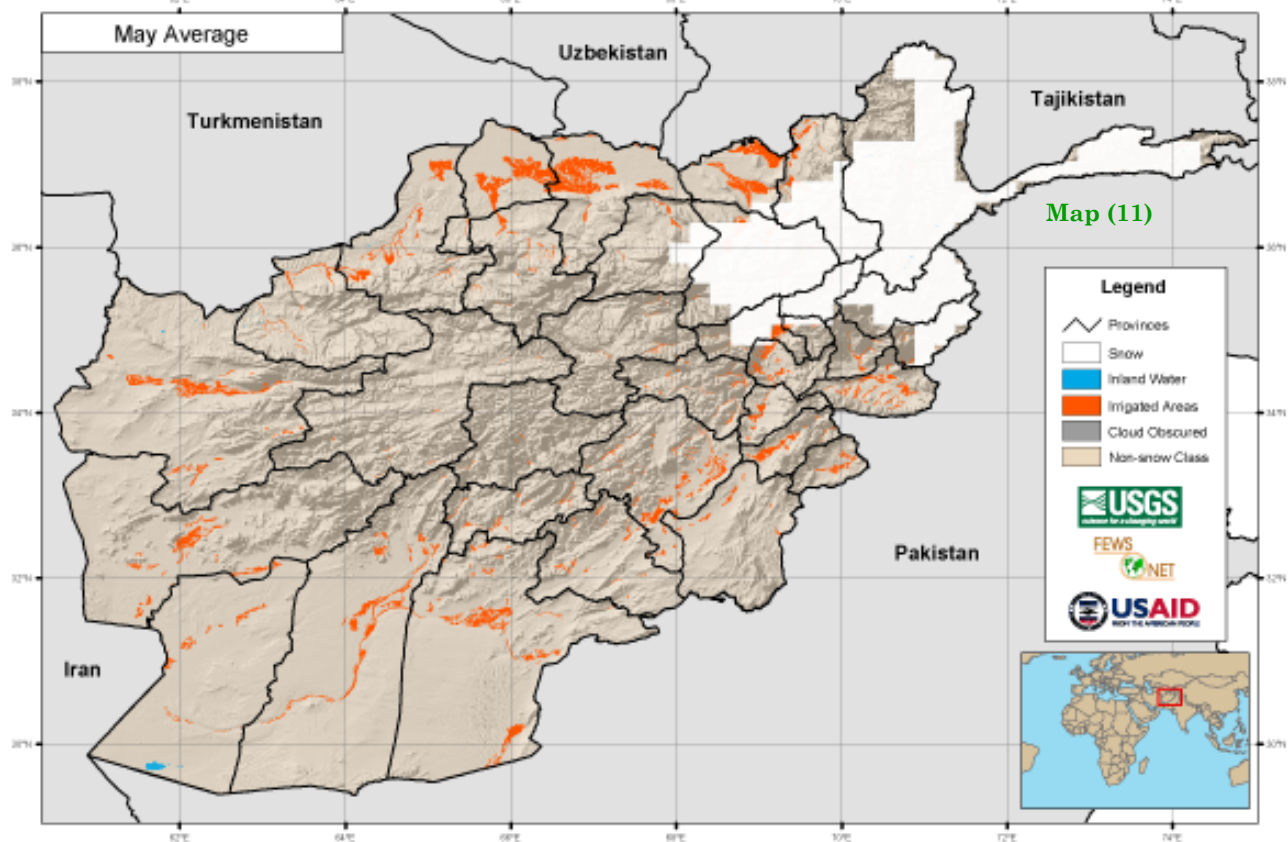
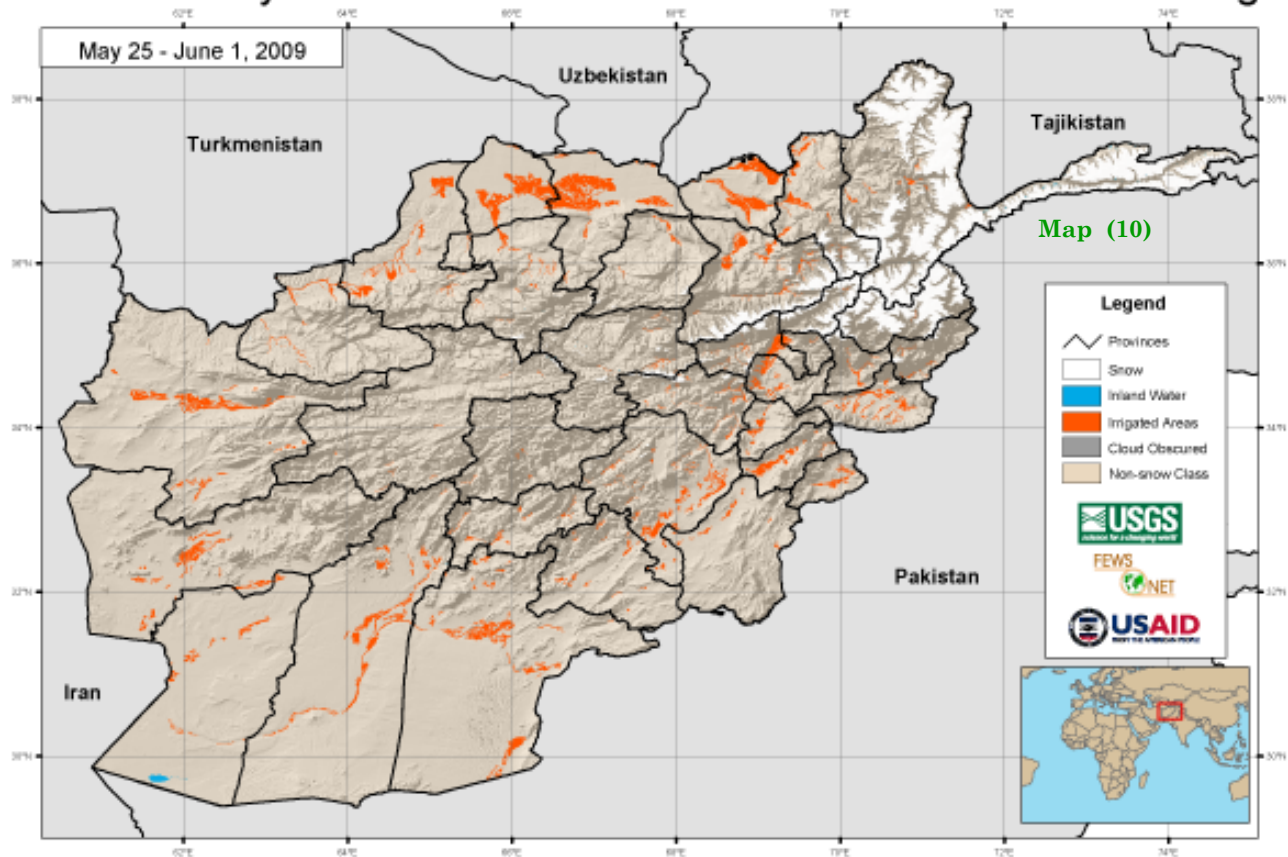
Map (7) shows snow pack remained confined to the high elevations of the Northeast, as is typical for this time of year. Map (7) shows that the snow depth is 10 to 30 cm in the mentioned areas.



MODIS 8-day Snow Cover Extent - Current vs. Historical Average



MODIS 8-day Snow Cover Extent - Current vs. Historical Average



Temperature and its effect

Temperature for the past agricultural season of (2008 – 2009) was lower compared to the last season (2007 – 2008) all over the country.

During the month of January and February 2009 temperature got warmer, but soon started to decrease slightly.

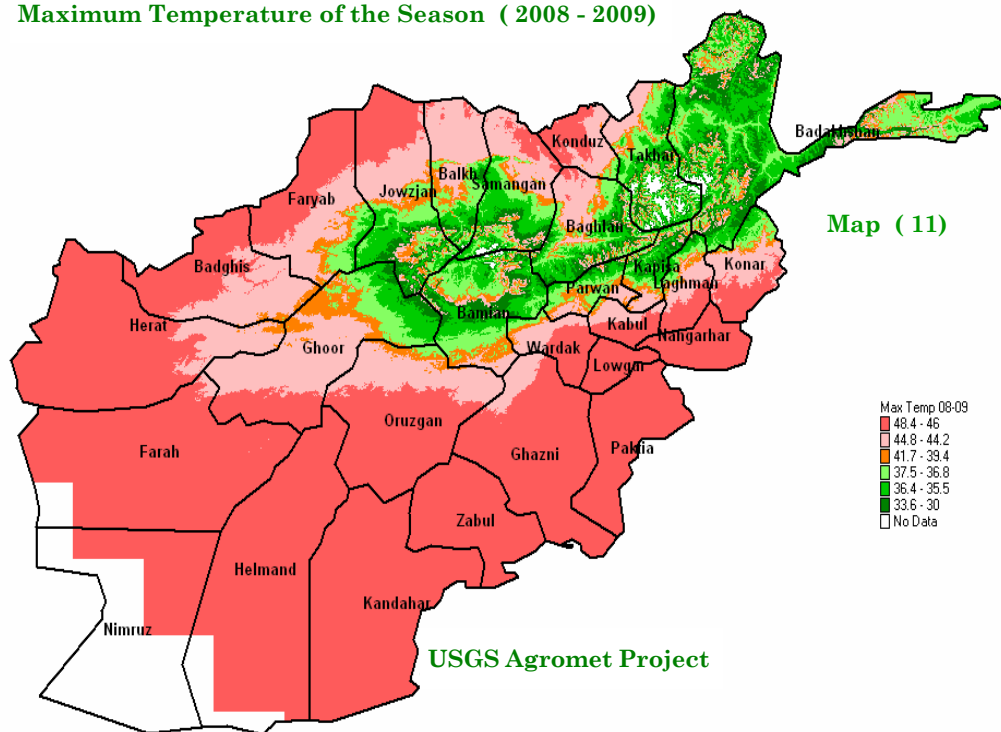
Lower temperature during the Spring months of the past season prevented rapid snow melt.

Lower temperature during the mentioned period of time resulted to consistent snow extent and snow depth in snow coverage areas.

As map (11) shows the southwestern, some parts of the Western region, Southern and Eastern regions experienced extreme hot weather during the growing season (2008 – 2009).

The maximum temperature recorded during the agriculture season of (2008-2009) was 48.4 °C in Farah province (Southwest).

Maximum Temperature of the Season (2008 - 2009)



Frost Days recorded

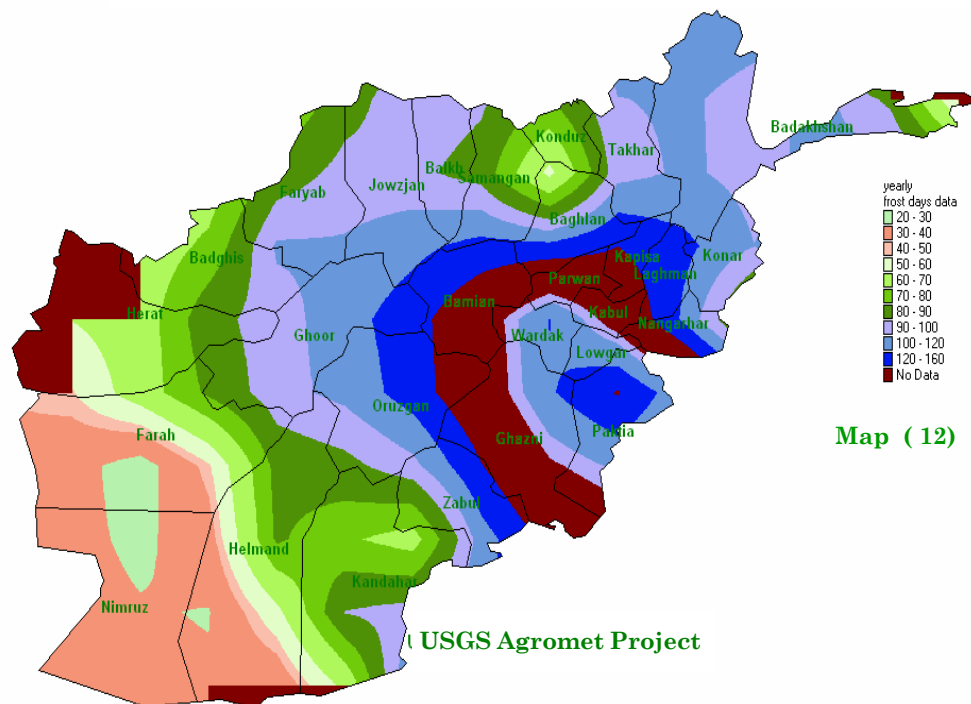
Based on the temperature recorded data, no significant change in frost days has happen during the Agricultural season (2008 - 2009) compared to last season (2007-2008) across the country.

Temperature dropped down to freezing point in October 2008 in the Central Highlands and the Northeastern regions, this situation continued until April 2009 for the Central Highlands, North eastern high elevations and some parts of the Southeastern region.

As Map (12) shows the Central Highlands, some parts of the Capital regions, Southeastern region experienced most frost days during the agricultural season (2008 - 2009). The Southern and Western regions had the lowest frost days.

The maximum days with frost, has been recorded 161 frost days in Bamyan province (Central Highlands), 143 frost days has been recorded in Gazni province and 131 frost days in Sardy (Southeastern), the minimum number of frost days was 7 days in Lashkargah (Southern region).

Accumulated Yearly Frost Days for Agriculture Season(2008 - 2009)



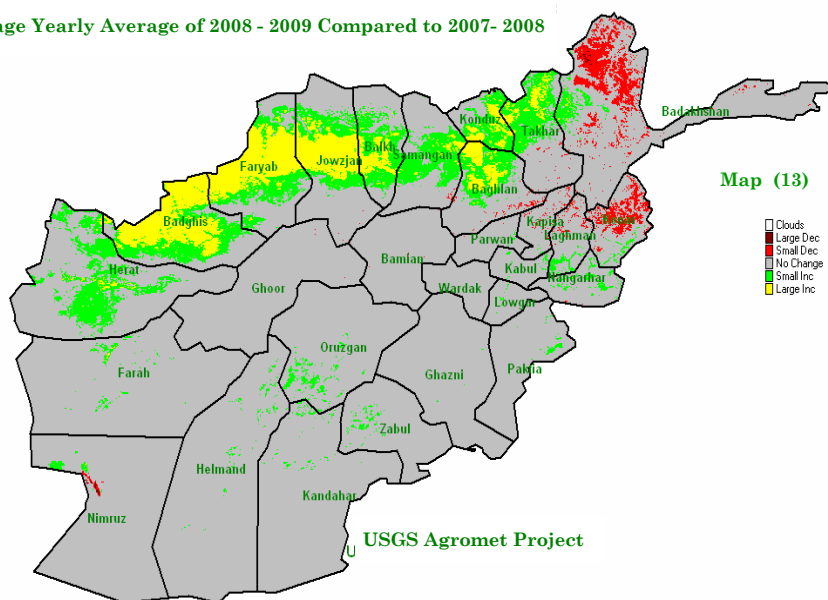
Greenery of the year (2008 - 2009)

Comparison of yearly average of NDVI for the past agricultural season (2008 - 2009) with the yearly average of NDVI for the (2007 - 2008) season as shown in map (13), large increase of NDVI in the Northwestern region and some parts of the Northern region has been occurred. During the agricultural season of (2008 - 2009) compared to the last season (2007-2008) small decrease has been occurred in

NDVI value in some parts of the Northeastern and Eastern regions.

There is no change in NDVI value in the remaining regions of the country during the agricultural season of (2008 - 2009) over the last season (2007 - 2008).

Difference image Yearly Average of 2008 - 2009 Compared to 2007- 2008



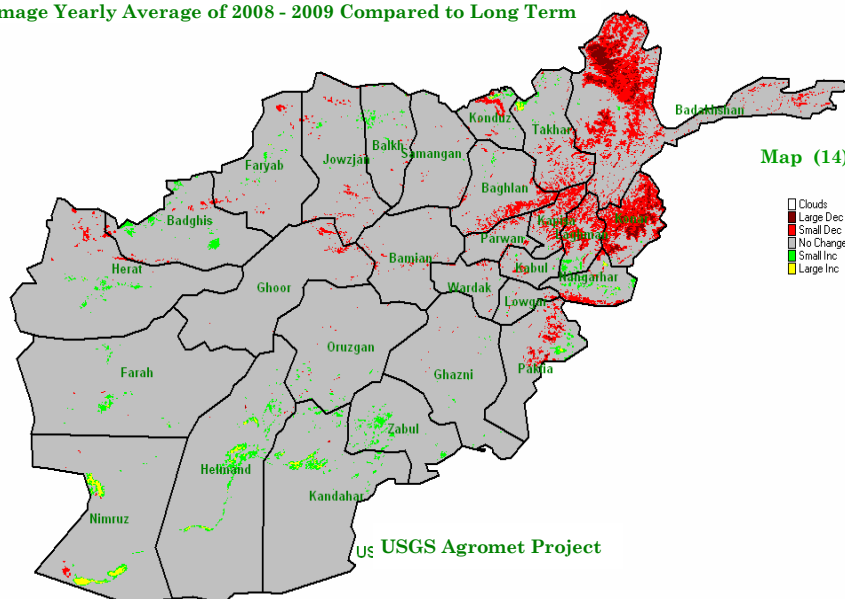
Map (13)



Comparison of yearly average of NDVI for the agricultural season (2008 - 2009) with the long term average of NDVI as shown in map(14), small decrease of NDVI has been occurred in some parts of the Northeastern region and some parts of the Eastern region.

The NDVI value in agricultural season of (2008 - 2009) compared to the long term average of NDVI value, there is no change of NDVI has been occurred in the remaining regions of the country.

Difference image Yearly Average of 2008 - 2009 Compared to Long Term



Map (14)

